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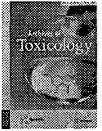
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Protective effect of vitamin E on chromium (VI)-induced cytotoxicity and lipid peroxidation in primary cultures of rat Hepatocytes

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Authors

N. Susa, Shunji Ueno, Yoshinori Furukawa, Masayasu Sugiyama

Abstract

Pretreatment of primary cultures of rat hepatocytes with !-tocopherol succinate (vitamin E) for 20 h prior to exposure to K₂Cr₂O₇ resulted in a marked decrease of chromium (VI)-induced cytotoxicity, as evaluated by the leakage of lactate dehydrogenase, without affecting cellular uptake and subcellular distribution of chromium. The levels of chromium (VI)induced lipid peroxidation, as monitored by malondialdehyde formation, were also inhibited by pretreatment with the vitamin. Pretreatment with vitamin E normalized the levels of nonenzymatic antioxidants such as glutathione and vitamin C suppressed by dichromate, and caused a distinct accumulation of vitamin E in hepatocytes. However, vitamin E pretreatment did not affect the activities of enzymatic antioxidants including glutathione reductase, superoxide dismutase, and catalase suppressed by dichromate. These results indicate that the protective effect of vitamin E against

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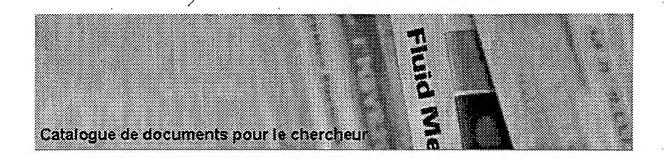
chromium (VI)-induced cytotoxicity as well as lipid peroxidation, may be associated more with the level of nonenzymatic antioxidants than the activity of enzymatic antioxidants.

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Nephrotoxic and hepatotoxic effects of trivalent and hexavalent chromium in a teleost fish Anabas scandens : enzymological and biochemical changes

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